METHOD AND APPARATUS FOR IMPROVED HIGH-SPEED ADAPTIVE EQUALIZATION

ABSTRACT OF THE DISCLOSURE

Improved high-speed adaptive equalization is presented that may involve converting an optical signal into an electrical signal and performing equalization by (i) filtering the electrical signal with an analog filter according to at least one filter coefficient to produce a filtered output, (ii) generating an error signal from the filtered output according to an error function, (iii) providing at least one control signal to the analog filter for adjusting the at least one filter coefficient, (iv) detecting a relationship between a change in the at least one filter coefficient and a change in the error signal, and (v) adjusting the at least one filter coefficient according to the relationship to minimize the error signal. The least one coefficient may comprise a plurality of coefficients, and the relationship may be a gradient estimate having multiple components, each determined by varying only one of the coefficients and detecting a resulting change in the error signal.